

Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Oakland**

Site Summary Level: **Energy Technology Engineering Center**

Project **OK-042 / ETEC Waste Management**

Report Number: **GEN-01b**

Print Date: **3/9/2000**

HQ ID: **0291**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Definition of Scope: The activities at ETEC involve the operations of two RCRA-permitted facilities (HWMF and RMHF).

Activities at the HWMF are to allow for the safe and compliant storage, treatment and off-site disposal of sodium (hazardous) waste.

Activities at the RMHF are to allow for the safe and compliant: (1) storage and ultimate off-site disposal of approximately 7.5 cubic meters of transuranic and mixed transuranic waste; (2) storage, limited treatment and off-site disposal of the on-going inventory of mixed low level waste (MLLW) that has been generated from D&D activities; and (3) storage, treatment and off-site disposal of LLW resulting from D&D activities.

Technical Approach: Waste management activities included for this project include operations at the HWMF and RMHF and involves the storage, treatment, packaging, shipping and disposal of wastes generated from EM decontamination and decommissioning activities (Oakland Site Technology Need No. 15).

Operations at the HWMF include hazardous waste storage, treatment and disposal of sodium wastes (hazardous waste) generated at various facilities at ETEC. Treatment activities include the size reduction of large components, oxidation of sodium metal, hydrolysis of resulting sodium oxides (Oakland Site Technology Need No. 15).

Operations at the RMHF include:

- a. Transuranic and mixed transuranic storage and off-site disposal at the Waste Isolation Pilot Plant (WIPP). There is no planned treatment of TRU/MTRU prior to off-site disposal (Oakland Site Technology Need No. 19). This activity is highly dependent upon the timely opening of the WIPP facility.
- b. Mixed low level waste (MLLW) storage, limited treatment and off-site disposal. These activities will be in accordance with the ETEC Site Treatment Plan (STP) as required by the Federal Facilities Compliance Act (FFCA).
- c. Low level waste (LLW) storage, treatment and off-site disposal. Treatment activities include the evaporation of radioactive water. Off-site disposal will include the Nevada Test Site (NTS), Hanford and any other DOE-approved commercial site.

Project Status in FY 2006:

Waste Management activities are expected to be complete by FY2007.

Post-2006 Project Scope:

There will be no waste management activities after FY2007.

Project End State

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Project Description Narratives

All of the hazardous, radioactive and mixed waste activities are expected to be complete by FY2007.

Cost Baseline Comments:

ETEC has developed a Multi-Year Program Plan (MYPP) that details the schedule, budget and technical aspects of the EM program at ETEC for FY99 and FY00. Included in this document is the budget, technical and schedule estimates for the EM-30 Waste Management program. These estimates are developed by Cost Account Managers (CAMs) and then reviewed by DOE/OAK cost estimation specialists. The CAMs have received guidance from DOE/OAK in terms of how to prepare technical scope, schedule, milestone and resource needs. The data provided by the CAMs were then consolidated to provide higher level cost baselines in the form of the MYPP. Please note that cost estimates were collected in current year dollars and did not include contingency.

On October 10, 1997, ETEC completed the "Cost Estimates for Facility Operations and Maintenance" for EM operations at ETEC and includes Waste Management operations at ETEC. This cost estimate roughly follows the methodology listed above for the MYPP; however, the Cost Estimate serves as a quantifiable approach to document scope, schedule and cost requirements of waste management operations from FY97 through FY06. FY06 is the ending date of EM-30 operations at ETEC.

Safety & Health Hazards:

Safety and health (S&H) hazards associated with the functional categories of treatment, storage and disposal of wastes at the RMHF generated from D&D activities are related to radiological and chemical exposure during waste handling activities. Exposure to radiological and chemical hazards poses greatest risk to workers and the environment.

For the HWMF, hazards associated with the functional areas of treatment and storage of sodium wastes generated from D&D activities are related to chemical exposure and potential overpressure events resulting from the treatment of sodium wastes. These exposures pose the greatest risk to the worker, and minimally to the environment or the public. No radioactive waste is managed at this facility.

The waste management program at ETEC is part of an integral and cross-cutting S&H effort for all of ETEC EM activities. Rocketdyne has dedicated staff of various S&H disciplines that identify and analyze the hazards associated with the PBS work scope, as well as provide preventative measures to mitigate their impacts on the worker, the environment and the public. These S&H activities are necessary in order to conduct programs safely and compliantly. Activities that have been implemented in the past and continue presently include:

- Completion of assessments and make recommendations (to management, DOE and/or health/safety teams) to any new activity, equipment or operation involving waste at any of the two EM-30 facilities (the RMHF and HWMF).
- Review and evaluate SOP's, written health and safety guidance and regulatory reports.
- Implement any engineering safeguards and procedural guidelines necessary to eliminate, control and mitigate hazards to personnel, the environment and local residents.
- Review environmental regulations and documents to understand and analyze impact on waste management operations.

Safety & Health Work Performance:

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Project Description Narratives

The ETEC EM-30 PBS (OAK 0291) provides for activities to ensure readiness to perform work, measures used to monitor adequacy of safety controls and mechanisms to identify unforeseen S&H project hazards. The S&H activities are used to coordinate, direct, integrate and control work performance across multiple functional categories, including treatment, storage and disposal at the RMHF and HWMF. Examples of activities used to ensure safe and compliant operations are as follows:

- Facility Safety Analysis Documents and operational documents that are developed and prepared to identify hazards and risks associated with facility operations. These documents are developed and maintained as the primary facility safety documents to ensure that the risk to the worker and the public will not exceed the level deemed safe through regulations, DOE orders or guidance/policy. Without these procedures, work would be conducted without the necessary safeguards, leading to potentially serious worker injury.
- Standard Operating Procedures (SOP's) are prepared for all operations, including waste management operations and facilities. These procedures are designed to provide instructions in conducting an operation to ensure the required endpoint is achieved and accomplished safely. Lack of SOP's will place workers at added safety and health risk on a daily basis and jeopardizes successful completion of the operation.
- Facility and equipment maintenance is routinely executed to ensure a safe and compliant workplace per DOE directives, laws and regulations. Without this activity, facilities would degrade and become unreliable, creating unsafe conditions and exposing workers to added risk of injury.
- Readiness Reviews are conducted prior to the start up of a new or modified facility or operation. These reviews are conducted with various disciplines including S&H.

S&H categories indirectly funded through EM-30 are all represented in the PBS.

The listed S&H categories in table D.2.2 are funded indirectly by EM-30 and, therefore, not included in the Direct Costs table.

PBS Comments:

Current contamination at the site is a continual source of irritation to the general public and stakeholders. The site has the attention of nuclear activists and has been the focus of a great deal of media attention. Active cleanup of the site is improving the perception of the SSFL (of which ETEC is a portion of).

Baseline Validation Narrative:

In February 1995, DOE/OAK conducted an Independent Cost Estimate (ICE) of Building 029 and 133 operations (the Hazardous Waste Management Facility). This ICE was conducted by a subcontractor hired to validate the technical and budgetary scope of the operations of the HWMF. The finding of the ICE indicated that the difference between DOE/OAK's subcontractor cost estimate and the ETEC budget submittal disagreed by less than 5%.

ETEC is finalizing a Multi-Year Program Plan that will quantify the costs and define the scope of EM-30 operations at ETEC for FY98 and FY99.

On October 10, 1997, ETEC completed the "Cost Estimates for Facility Operations and Maintenance" for EM operations at ETEC and includes Waste Management operations at ETEC. This cost estimate serves as a quantifiable approach to document scope, schedule and cost requirements of waste management operations from FY97 through FY06, which is the ending date of EM-30 operations at ETEC.

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General PBS Information

Project Validated? Yes Date Validated: 2/1/1997
 Has Headquarters reviewed and approved project? No
 Date Project was Added: 12/1/1997
 Baseline Submission Date: 7/13/1999
 FEDPLAN Project? Yes

Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	N	Y	N	Y	N	Y	Y	N

Project Identification Information

DOE Project Manager: Robert Alvord
 DOE Project Manager Phone Number: 510-637-1628
 DOE Project Manager Fax Number: 510-637-1646
 DOE Project Manager e-mail address: robert.alvord@oak.doc.gov
 Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
PBS Baseline (current year dollars)	36,305	1,500	37,805	2,208	2,538	3,882	3,882	2,815	3,500	3,500	3,200	3,400	4,100	4,500	5,200
PBS Baseline (constant 1999 dollars)	33,844	1,263	35,107	2,208	2,538	3,882	3,882	2,815	3,408	3,338	2,989	3,111	3,674	3,949	4,470
PBS EM Baseline (current year dollars)	36,305	1,500	37,805	2,208	2,538	3,882	3,882	2,815	3,500	3,500	3,200	3,400	4,100	4,500	5,200

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Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	
PBS EM Baseline (constant 1999 dollars)	33,844	1,263	35,107	2,208	2,538	3,882	3,882	2,815	3,408	3,338	2,989	3,111	3,674	3,949	4,470	
	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (current year dollars)	1,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	1,263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	1,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	1,263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.70%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

Project Reconciliation

Project Completion Date Changes:

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Project Reconciliation

Previously Projected End Date of Project: 9/6/2006

Current Projected End Date of Project: 9/30/2007

Explanation of Project Completion Date Difference (if applicable):

Completion date is 9/30/2007. Difference reflects additional costs attributed to activities associated with the disposal of TRU wastes, especially the remote-handled TRU.

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	38,385	Actual 1997 Cost:	2,538	Actual 1998 Cost:	3,882
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Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	31,965	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):	863
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Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	32,828
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Project Cost Changes

Cost Adjustments Reconciliation Narratives

Cost Change Due to Scope Deletions (-):

Cost Reductions Due to Efficiencies (-):	3,811	Improvements in waste disposal costs and decontamination techniques
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Cost Associated with New Scope (+):

Cost Growth Associated with Scope Previously Reported (+):

Cost Reductions Due to Science & Technology Efficiencies (-):

Subtotal:	29,017
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Additional Amount to Reconcile (+):	0	Total costs reflect the negotiated price of the new contract
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Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	29,017
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Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
End of TRU Waste	OK-042-27		1/26/2005								
Project Mission Complete	OK-042-13		9/30/2007								

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Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Shipment of Chrome Salt Cores (ET-W019) STP wastestream	OK-042-11		9/1/1999	9/1/1999			Y				
Shipment of Lab Reagent Waste (ET-W020) STP wastestream	OK-042-09		9/1/1999	9/1/1999			Y				
Shipment of Mercury Light Bulbs (ET-W026) STP wastestream	OK-042-10		9/1/1999	9/1/1999			Y				
Start of TRU Waste	OK-042-24		10/1/2002								
Project Start Date			10/1/1990								

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
End of TRU Waste	OK-042-27		Y				4	5	5		
Project Mission Complete	OK-042-13				Y	Y					
Shipment of Chrome Salt Cores (ET-W019) STP wastestream	OK-042-11										
Shipment of Lab Reagent Waste (ET-W020) STP wastestream	OK-042-09										
Shipment of Mercury Light Bulbs (ET-W026) STP wastestream	OK-042-10										
Start of TRU Waste	OK-042-24		Y				4	5	5		
Project Start Date				Y							

Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2004
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Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2004
TRU														
Treatment	M3	0.00	0.00	0.00	0.00		0.00							
TRU														
Storage	M3													
TRU														
Ship. to WIPP	M3	0.00	0.00	0.00	0.00		0.00							
MLLW														
Treatment	M3	0.00	0.00	0.00	0.00		0.00							
MLLW														
Storage	M3													
MLLW														
On-Site Disp.	M3	0.00	0.00	0.00	0.00		0.00							
MLLW														
Comm. Disp.	M3	0.00	0.00	0.00	0.00		0.00							
MLLW														
Ship to DOE Disp.	M3	0.00	0.00	0.00	0.00		0.00							
LLW														
Treatment	M3	0.00	0.00	0.00	0.00		0.00							
LLW														
Storage	M3							122.70	71.70	46.00	46.00	21.00	21.00	6.00
LLW														
Comm. Disp.	M3	0.00	0.00	0.00	0.00		0.00							

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Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2004
LLW														
Ship to DOE Disp.	M3	2,484.10	0.00	2,484.10	0.00		0.00	50.40	101.00	366.70	366.00	127.00	275.00	358.00
Rem. Waste														
Disposed	M3	16,530.32	0.00	16,530.32	0.00		0.00	33.55	447.87	1,645.09	2,007.47	2,097.57	1,833.97	2,130.00
Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035	
TRU														
Treatment	M3													
TRU														
Storage	M3													
TRU														
Ship. to WIPP	M3													
MLLW														
Treatment	M3													
MLLW														
Storage	M3													
MLLW														
On-Site Disp.	M3													
MLLW														
Comm. Disp.	M3													
MLLW														
Ship to DOE Disp.	M3													

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Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035
LLW													
Treatment	M3												
LLW													
Storage	M3	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LLW													
Comm. Disp.	M3												
LLW													
Ship to DOE Disp.	M3	358.00	124.00	716.00									
Rem. Waste													
Disposed	M3	2,130.07	3,079.13	3,255.60									
Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total			
TRU													
Treatment	M3									0.00			
TRU													
Storage	M3												
TRU													
Ship. to WIPP	M3									0.00			
MLLW													
Treatment	M3									3.00			
MLLW													
Storage	M3												
MLLW													
On-Site Disp.	M3									60.00			

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Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total
MLLW										
Comm. Disp.	M3									2.00
MLLW										
Ship to DOE Disp.	M3									0.00
LLW										
Treatment	M3									0.00
LLW										
Storage	M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
LLW										
Comm. Disp.	M3									55.00
LLW										
Ship to DOE Disp.	M3									4,900.70
Rem. Waste										
Disposed	M3									16,048.90